

## Claims

1 A cable which has at least two conductor sets provided to run along the same, each of said conductor set including at least two conductors twisted or wound around each other and wherein said at least two conductor sets are kept physically spaced apart by a distance of at least 1mm as they run along said cable.

2 A cable according to claim 1 wherein the cable includes an elongate member which acts to space the conductor sets the required distance apart.

3 A cable according to claim 1 wherein the conductor sets are spaced apart by 2mm or greater distance.

4 A cable according to claim 2 wherein at least one of the conductor sets is wound or twisted around the outside of the elongate member.

5 A cable according to claim 1 wherein an elongate member having a passage is included, said passage housing a first conductor set and a second conductor set is positioned to run along the outside of said member.

6 A cable according to claim 5 wherein the second conductor set is wound around the elongate member.

7 A cable according to claim 6 wherein the second conductor set is of higher resistivity than the first conductor set and the degree of twist between the respective conductor sets is different.

8 A cable according to claim 5 wherein the passage is provided with location points to locate the first conductor set therein.

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9 A cable according to claim 1 wherein the degree of twist or winding of conductors in at least one of the sets of conductors differs from that of the conductors in the other conductor sets in the cable.

10 A cable according to claim 9 wherein the variation between the degree of twist or winding of the conductors in each of the conductor sets differs with respect to each of the other conductor sets and the degree of variation is defined with respect to the relative spacing between the adjacent conductor sets.

11 A data cable for the transfer of data between two locations, the cable comprising a series of conductors selectively grouped together into at least two conductor sets, each set having at least two conductors twisted or wound with respect to each other, each set spaced by an elongate member and wherein said conductor sets are positioned to run substantially straight along the cable.

12 A cable according to claim 11 wherein the said at least two conductor sets are positioned to run along the cable with no lay. .

13 A cable according to claim 11 wherein at least one conductor set is mounted within an elongate member to pass therealong and one or more conductor sets are positioned on the external surface of the elongate member.

14 A cable according to claim 11 wherein the cable comprises four sets of conductors, each set comprising at least two conductors twisted or wound and each of the sets spaced apart by at least 1mm.

15 A cable according to claim 14 wherein the cable cross section is substantially circular and the conductor sets are spaced apart substantially 90 degrees between adjacent sets.

16 A cable according to any of claims 11-15 wherein each of the conductors is insulated from the others by insulating material and the cable, includes an outer housing of insulating material

17 A cable according to claim 11 said cable including an elongate member, said member locating thereon or therein, a plurality of conductor sets, said conductor sets provided at spaced locations to pass along and/or within the elongate member with the spacing being 1mm or greater between adjacent conductor sets.

18 A cable according to claim 17 wherein the elongate member is in the form of a tube and the conductor sets lie on any or any combination of the inside or outer surfaces of the tube wall and/or within the wall itself.

19 A cable according to claim 17 wherein the conductor sets are wound around each other and/or the elongate member.

20 A cable according to claim 17 wherein the longitudinal axes of each of the conductor sets run substantially parallel to the longitudinal axis of the elongate member.

21 A cable according to claim 17 wherein the degree of twist or winding of the conductors in each conductor set is varied with respect to that of the other sets of conductors.

22 A cable according to claim 21 wherein the degree of difference is increased as the spacing between the respective conductor sets is reduced.

23 A cable according to claim 17 wherein each of the sets of twisted conductors are provided at the same density to minimise any propagation delay in the data transferred along the cable.

24 A cable according to claim 17 wherein at least one conductor set passes along the elongate member passage substantially in parallel with the longitudinal axis of the cable.

25 A cable according to claim 24 wherein each of the conductor sets runs in a straight linear path in parallel with the longitudinal axis of the cable.

26 A cable according to claim 17 wherein one or more of the conductor sets is wound around the elongate member in a substantially helical path.

27 A cable according to claim 17 wherein a passage in the elongate member carries services therealong.

28 A plug for use with a cable of the type described in the preceding claims said plug having a body arranged for location within a socket and wherein said plug has reception means for the connection of a plurality of spaced conductor sets, said reception means spaced apart on the plug body.

29 A plug according to claim 28 wherein the spacing between conductor set reception means is at least 1mm and, if the plug body is circular cross section, by  $360^\circ$  divided by the number of conductor set reception means provided.

30 33 A plug according to claim 28 wherein the reception means for the conductor sets are connected to metallic contacts to allow

connection and transmission of a signal from the conductor sets to metallic contacts in the socket into which the plug is inserted.

31/34 A plug according to claim 28 wherein the plug body is substantially circular in cross section.

32/36 A plug according to claim 28 wherein the plug body is substantially flat and planar in shape.

33/37 A socket for use with a cable of the type described in the preceding claims said socket having a port for reception of a plug and wherein said socket has reception means for the connection of a plurality of spaced conductor sets, said reception means spaced apart at the socket port.

34/38 A socket according to claim 37 wherein the angular spacing between conductor set reception means is  $360^\circ$  divided by the number of conductor set reception means provided.

35/39 A socket according to claim 37 wherein the reception means for the conductor sets are connected to metallic contacts to allow connection and transmission of a signal from the conductor sets to metallic contacts in the plug inserted in the socket port.

36/40 A socket according to claim 37 wherein the socket port is substantially circular in cross section.

37/41 A socket according to claim 37 wherein the socket port is a substantially flat slot.

38/42 A method for forming a cable which includes a series of conductor sets, each of said sets including at least two conductors which are twisted/ wound about one another to form the set and

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the degree of twist/winding ratio of each of the sets is compared with the twist ratios for each of the other sets and also the required spacing between the sets as they run along the cable and on the basis of this comparison the degree of twist/winding ratio of the conductors in each conductor set are varied with respect to the other conductor sets, if required to improve the performance of the cable.

38/ <sup>37</sup>43 A method according to claim ~~42~~ wherein the difference between the degree of twist/winding ratios increases progressively through the adjacent spaced conductor sets.

<sup>34</sup>44 A method according to claim ~~43~~ wherein the level of variation in the degree of twist/winding increases as the required spacing between the conductor sets reduces.

Table 1.764